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| EXAMINER |
|---|
| GODBOLD, DOUGLAS |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2626 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

PTOL-90A (Rev. 04/07)

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 10/735,894 | KIM ET AL. |
| | Examiner | Art Unit | |
| | DOUGLAS C. GODBOLD | 2626 | |

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on _01 October 2008_.

2a)☐ This action is **FINAL**.  2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) _1-3,6,9 and 12-15_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-3,6,9 and 12-15_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All  b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)  Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)  Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 08-06)  **Office Action Summary**  Part of Paper No./Mail Date 20090115

## DETAILED ACTION

1.      This Office Action is in response to correspondence filed October 1, 2008 in

reference to application 10/735,894.  Claims 1-17 are pending in the application and

have been examined.


2.      Applicant requested in correspondence filed October 1, 2008 and in an interview

conducted October 22, 2008 that the previous office action be withdrawn, as the

previous examiner had failed to respond to the amendments and arguments presented

August 28 2008.  The examiner agrees and the previous office action is hereby

withdrawn.


### *Information Disclosure Statement*

3.      The information disclosure statement filed February 2, 2009 fails to comply with

the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the cited reference is in

a foreign language and no translation has been provided.  It has been placed in the

application file, but the information referred to therein has not been considered as to the

merits.  Applicant is advised that the date of any re-submission of any item of

information contained in this information disclosure statement or the submission of any

missing element(s) will be the date of submission for purposes of determining

compliance with the requirements based on the time of filing the statement, including all

certification requirements for statements under 37 CFR 1.97(e).  See MPEP

§ 609.05(a).

### Response to Amendment

4.      The Amendment filed August 28, 2008 has been accepted and considered in this

office action.  Claims 1, 6, 9, and 12 have been amended and claims 4, 5, 7, 8, 10, 11,

16 and 17 cancelled.

### Response to Arguments

5.      Applicant's arguments filed August 28, 2008 have been fully considered but they

are not persuasive.

6.      With regards to applicant's arguments, see Remarks pages 15-16 that Park does

not use symbols when coding, the examiner respectfully disagrees.  Applicant has

agued that Park encodes individual bits instead of symbols.  However, one of ordinary

skill in the art can appreciate that "symbols" can be fairly interpreted as individual bits.

As this is not defined as being otherwise in the claims, the broadest reasonable

interpretation may be given to the limitations.  In light of this, although Park encodes

and decodes bits, it is a reasonable interpretation that the "symbols" of the present

invention can be interpreted as the individual bits of Park.

        Furthermore, as pointed out by the applicant, Park mentions Huffman coding in

column 8 lines 1-11.  It is noted that even if individual bits are used, the Huffman coder

will treat the individual bits as symbols in order for Huffman coding to be effective,

determining the probabilities for the next bits to be outputted.  Huffman coding will not

function if only one bit is considered at a time.  Therefore Park teaches using symbols.


### Claim Rejections - 35 USC § 101

7.      35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.


8.      Claims 1-3 and 6 are rejected under 35 USC 101 as not falling within one of the

four statutory categories of invention.  While the claim(s) recite a series of steps or acts

to be performed, a statutory "process" under 35 USC 101 must (1) be tied to another

statutory category (such as a manufacture or a machine), or (2) transform underlying

subject matter (such as an article or material) to a different state or thing.  The instant

claims neither transform underlying subject matter nor positively recite structure

associated with another statutory category, and therefore do not define a statutory

process.  In this case, no specific statutory machine or manufacture is made necessary

by the claims as presented, leaving open the possibility that the coding method could be

done by hand.


### Claim Rejections - 35 USC § 102

9.      The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

10.     Claims 6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Park

(US Patent 6,438,525).


11.     Consider 6, Park teaches a method for decoding audio data that is coded in a

layered structure, with scalability, comprising:

        inputting audio signal and extracting audio data from said audio signal (figure 4,

 audio data input);

        differential-decoding additional information containing scale factor information

and coding model information corresponding to a first layer (Col. 4, lines 37-48, wherein

the quantization step size information is the scale factor information, and the

quantization bit information is the coding model information. Also Col. 3, lines 18-21,

describe the order of creation of the layers.);

        Huffman-decoding audio data in units of symbols in order from a symbol' formed

with MSB bits down to a symbol formed with LSB bits and obtaining quantized samples

by referring to the coding model information (Col. 4, lines 37- 48 and 64-65, wherein the

symbols are represented by bits (Col. 4, lines 49-50).);

        inversely quantizing the obtained quantized samples by referring to the scale

factor information (inverse quantizing portion 410 from Fig. 4 and Col. 13, lines 5-7);

        inversely MDCT transforming the inversely quantized samples (frequency/time

mapping portion 420 from Fig. 4 and Col. 13, lines 7-10. Note that Park does not

specifically mention using the inverse MDCT in transforming the signal from frequency

to the temporal domain, however it would have been obvious to one having ordinary

skill in the art at the time the invention was made to have used the same process for

decoding as for encoding but inversely, in which case the inventor used the MDCT

transform for the time/frequency mapping portion for converting the data from the

temporal domain into the frequency domain (Col. 10, lines 62-65, and Col. 13, lines 34-

38).); and

repeatedly performing the steps with increasing the ordinal number of the layer

one by one every time, until decoding for a predetermined plurality of layers is finished

(Col. 13, lines 31-34),

wherein the Huffman-decoding of audio data comprises:

decoding audio data in units of symbols within a bit range allowed in a layer

corresponding to the audio data, in order from a symbol formed with MSB bits down to a

symbol formed with LSB bits (Col. 13, lines 14-30, wherein the units of symbols are

represented by bits.); and

obtaining quantized samples from a bit plane on which decoded symbols are

arranged (Col. 13, lines 18-20, wherein Col. 7, lines 50-65 illustrate the arrangement of

bits or bit plane used for the encoding, and Col. 8, lines 2-11 describe the arrangement

of the bit patterns (symbols) for encoding.),

wherein in decoding audio data, a 4*K bit plane formed with decoded symbols is

obtained, and in obtaining quantized samples, K quantized samples are obtained from

the 4*K bit plane, where K is an integer (Col. 13, lines 18-20, wherein Col. 7, lines 50-65

illustrate the arrangement of bits or bit plane (4*K) used for the encoding. For this

example bit plane, the number of quantized samples (K) is 8, and the symbols are

represented as bits.).


12.     Consider claim 9, Park teaches an apparatus for decoding audio data that is

coded in a layered structure, with scalability, comprising:

        an unpacking unit which decodes additional information containing scale factor

information and coding model information corresponding to a first layer, and by referring

to the coding model information, Huffman-decodes audio data in units of symbols in

order from a symbol formed with MSB bits down to a symbol formed with LSB bits and

obtaining quantized samples (bitstream analyzing portion 400 from Fig. 4, and Col. 4,

lines 37-50 and lines 64-65, wherein the quantization step size information is the scale

factor information, and the quantization bit information is the coding model information,

also the units of symbols are represented by bits.);

        an inverse quantization unit which inversely quantizes the obtained quantized

samples by referring to the scale factor information (inverse quantizing portion 410 from

Fig. 4, and Col. 4, lines 37-48); and

        an inverse transformation unit which inverse-transforms the inversely quantized

samples (frequency/time mapping portion 420 from Fig. 4, and Col. 4, lines 37-48),

        wherein the unpacking unit decodes audio data in units of symbols within a bit

range allowed in a layer corresponding to the audio data, in order from a symbol formed

with MSB bits down to a symbol formed with LSB bits, and obtains quantized samples

from a bit plane on which decoded symbols are arranged (Col. 12 line 67 to Col. 13 line

5, and Col. 13, lines 11- 20, wherein the units of symbols are the bitstreams which are composed of the bit sequences obtained from the bit plane as shown in Col. 7, lines 51-65.), and

wherein the unpacking unit obtains a 4*K bit plane formed with decoded symbols and then, obtains K quantized samples from the 4*K bit plane, where K is an integer (Col. 7, lines 49-65, 4*8 bit plane).


### Claim Rejections - 35 USC § 103

13.    The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.


14.    Claims 1-3, and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US Patent 6,438,525) in view of Andrew et al. (US 2002/0131084).


15.    Consider claim 1, Park teaches a coding method comprising:

inputting audio signal and extracting audio data from said audio signal (figure 2, PCM audio data input);

slicing the audio data so that sliced audio data corresponds to a plurality of layers (Col. 6, lines 6-12);

obtaining scale band information and coding band information corresponding to each of the plurality of layers (Col. 6, lines 1-6 and Col. 3, lines 39-42, wherein the

quantization step size information is the scale factor information, and the quantization

bit information is the coding model information);

coding additional information containing scale factor information and coding

model information based on scale band information and coding band information

corresponding to a first layer (Col. 6, lines 1-6 and Col. 3, lines 39-42, wherein the

quantization step size information is the scale factor information, and the quantization

bit information is the coding model information);

obtaining quantized samples by quantizing audio data corresponding to the first

layer with reference to the scale factor information (Col. 12, lines 15-19~ wherein the

step size information is the scale factor information, and Col. 6, lines 21-36);

Huffman-coding the obtained plurality of quantized samples in units of symbols in

order from a symbol formed with most significant bits (MSB) down to a symbol formed

with least significant bits (LSB) by referring to the coding model information (Col. 6,

lines 1-12, wherein the units of symbols are represented by the bit sequences, also

Col. 11, lines 3-14 and Col. 3, lines 46-48); and

repeatedly performing the steps with increasing the ordinal number of the layer

one by one every time, until coding for the plurality of layers is finished (Col. 6, lines 1-

6),

wherein the Huffman-coding of the plurality of quantized samples comprises:

mapping a plurality of quantized samples on a bit plane (Col. 7, lines 51- 65 show the

4*8 bit plane of quantized samples); and

coding the samples in units of symbols within a bit range allowed in a layer corresponding to the samples in order from a symbol formed with MSB bits down to a symbol formed with LSB bits (Col. 8, lines 2-11, wherein the units of symbols are represented by the bit sequences.).

wherein in the mapping of the plurality of quantized samples, K quantized samples are mapped on a bit plane and Huffman coding is performed by referring to the K-bit binary data where K is an integer (Col. 7, line 49 to Col. 8, line 11).

Park does not specifically mention obtaining a scalar value corresponding to the symbol formed with K-bit binary data, and then performing Huffman coding by referring to the obtained scalar value and a scalar value corresponding to a symbol higher than a current symbol on the bit plane.

Conversely, Andrew et al. teach obtaining a scalar value corresponding to the-symbol formed with K-bit binary data, and then performing Huffman coding by referring to the obtained scalar value and a scalar value corresponding to a symbol higher than a current symbol on the bit plane (See Paragraph [0080], "The Huffman decoders are staggered so that a Huffman decoder decoding bits at a lower bit plane has available the necessary information from higher bit planes (decoded from a Huffman decoder) to decode each coefficient in the scan," wherein the scalar values are represented by the "necessary information" and the symbols are represented by bits. It is noted that even though Andrew's decoder is the one having available the "necessary information from higher bit planes" it would have been obvious to a person having ordinary skill in the art at the time of the invention that since the "necessary information" is decoded from a

Huffman decoder, that information had to be available as well in the coding process for it to be able to be decoded or used by the decoder. Also, even though Andrew only mentions the "necessary information from higher bit planes," it would have been obvious to one having ordinary skill in the art at the time of the invention that in order for the "necessary information" from a higher bit plane to be available, the current "necessary information" (or current scalar value) for that higher bit plane had to also be available during the coding process.).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of obtaining a scalar value corresponding to the symbol formed with K-bit binary data, and then performing Huffman coding by referring to the obtained scalar value and a scalar value corresponding to a symbol higher than a current symbol on the bit plane as taught by Andrew et al. for Park's method in order to provide more parameters or necessary information from current or higher bit planes in order to obtain specific coding values and also to have that necessary information available to a decoder in order to obtain the quantized binary values.

16.     Consider claim 2, Park teaches the method of claim 1, further comprising, before the coding of additional information,

obtaining a bit range allowed in each of the plurality of layers, wherein in the coding of the obtained plurality of quantized samples, the number of coded bits is counted, and if the number of counted bits exceeds a bit range corresponding to the

bits, coding is stopped, and if the number of counted bits is less than the bit range

corresponding to the bits even after quantized samples are all coded, bits that remain

not coded after coding in a lower layer is finished are coded to the extent that the bit

range permits (Steps (b) and (c) from Col. 3, lines 18-35,'wherein the predetermined

layer size is the allowed bit range per layer.).


17.     Consider claim 3, Park teaches the method of claim 1, wherein the slicing of

audio data comprises:

        performing a wavelet transform of audio data (time/frequency mapping portion

200 from Fig. 2 and Col. 5, lines 4!-43); and

        slicing the wavelet-transformed data by referring to a cut-off frequency so that the

sliced data corresponds to the plurality of layers (Col. 6, lines 6-12).


18.     Consider claim 12, Park teaches an apparatus for coding audio data with

scalability comprising:

        a transformation unit which MDCT transforms the audio data (time/frequency

mapping portion 200 from Fig. 2, and Col. 6, lines 23-26);

        a quantization unit which quantizes the MDCT-transformed audio data

corresponding to each layer, by referring to the scale factor information, and outputs

quantized samples (quantizing portion 220 from Fig. 2, and Col. 6, lines 30-37, wherein

the scale factor information is the quantization step size.); and

a packing unit which differential-codes additional information containing scale factor information and coding model information corresponding to each layer, and Huffman-codes the plurality of quantized samples from the quantization unit, in units of symbols in order from a symbol formed with most significant bits (MSB) down to a symbol formed with least significant bits (LSB) by referring to the coding model information (bit packing portion 240 from Fig. 2, Col. 6, lines 1-12, Col. 3, lines 39-42, and Col. 3, lines 46-48, wherein the quantization step size information is the scale factor information, and the quantization bit information is the coding model information. Also the symbols are represented by the bit sequences of the bit-plane (Col. 7, lines 50-65).),

wherein the wherein the packing unit maps K quantized samples on a bit plane, and codes the samples in units of symbols within a bit range allowed in a layer corresponding to the samples, in order from a symbol formed with MSB bits down to a symbol formed with LSB bits (Col. 6, lines 1-12, wherein the bit sequences are the symbols. An example of a bit plane used for the coding is shown, in Col. 7, lines 51-65.),and then performs Huffman-coding by referring to the K-bit binary data where K is an integer (Col. 7, line 49 to Col. 8, line 11 ).

However, Park does not specifically mention obtaining a scalar value corresponding to the symbol formed with K-bit binary data, and then performing Huffman coding by referring to the obtained scalar value and a scalar value corresponding to a symbol higher than a current symbol on the bit plane.

Conversely, Andrew et al. teach obtaining a scalar value corresponding to the symbol formed with K-bit binary data, and then performing Huffman coding by referring

to the obtained scalar value and a scalar value corresponding to a symbol higher than a current symbol on the bit plane (See Paragraph [0080], "The Huffman decoders are staggered so that a Huffman decoder decoding bits at a lower bit plane has available the necessary information from higher bit planes (decoded from a Huffman decoder) to decode each coefficient in the scan," wherein the scalar values are represented by the "necessary information" and the symbols are represented by bits. It is noted that even though Andrew's decoder is the one having available the "necessary information from higher bit planes" it would have been obvious to a person having ordinary skill in the art at the time of the invention that since the "necessary information" is decoded from a Huffman decoder, that information had to be available as well in the coding process for it to be able to be decoded or used by the decoder. Also, even though Andrew only mentions the "necessary information from higher bit planes," it would have been obvious to one having ordinary skill in the art at the time of the invention that in order for the "necessary information" from a higher bit plane to be available, the current "necessary information" (or current scalar value) for that higher bit plane had to also be available during the coding process.).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of obtaining a scalar value corresponding to the symbol formed with K-bit binary data, and then performing Huffman coding by referring to the obtained scalar value and a scalar value corresponding to a symbol higher than a current symbol on the bit plane as taught by Andrew et al. for Park's apparatus in order to provide more parameters or necessary information from current or

higher bit planes in order to obtain specific coding values and also to have that

necessary information available to a decoder in order to obtain the quantized binary

values.


19.     Consider claim 13, Park teaches the apparatus according to claim 12, wherein

the packing unit obtains scale band information and coding band information

corresponding to each of the plurality of layers, and codes additional information

containing scale factor information and coding model information based on scale band

information and coding band information corresponding to each layer (Col. 6, lines 1-6

and Col. 3, lines 39-42, wherein the quantization step size information is the scale factor

information, and the quantization bit information is the coding model information.).


20.     Consider claim 14, Park teaches the apparatus according to claim 12, wherein

the packing unit counts the number of coded bits and if the number of counted bits

exceeds a bit range corresponding to the bits, stops the coding, and if the number of

counted bits is less than the bit range corresponding to the bits even after quantized

samples are all coded, codes bits that remain not coded after coding in a lower layer is

finished, to the extent that the bit range permits (Col. 6, lines 1-6, and steps (b) and (c)

from Col. 3, lines 18-30).


21.     Consider claim 15, Park teaches the apparatus according to claim 12, wherein

the packing unit slices the MDCT-transformed data by referring to a cut\- off frequency

so that the sliced data corresponds to the plurality of layers (Col. 6, lines 1-12 and Col. 6, lines 24-27).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS C. GODBOLD whose telephone number is (571)270-1451. The examiner can normally be reached on Monday-Thursday 7:00am-4:30pm Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DCG

/Patrick N. Edouard/
Supervisory Patent Examiner, Art Unit 2626